



FACING PROTECTIONISM GENERATED BY TRADE DISPUTES:

CHINA'S POST-WTO BLUES

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Authors' Note:

This is a slightly revised version of the paper presented at the China Update 2007 Conference, Integrating Markets in China: Domestic and International, held at The Shine Dome, Acton, Australian National University in Canberra, Australia on 12 July 2007. After the completion of this paper, we became cognizant of the insightful analyses of Gary Burtless (2005, 2007a, and 2007b) which would have greatly strengthened our answer to the US component of Question 2 ("What are the problems revealed by the appearance of trade imbalances?"). We strongly recommend these papers to the reader. We are very indebted to Ann Doyle for many suggestions that improve our analysis.

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EXECUTIVE SUMMARY

In present-day political and policy discussions in Washington, widespread concern is shared over the large and growing U.S.-China trade deficit. In the Senate, this concern was manifested in the proposed Currency Exchange Rate Oversight Reform Act of 2007, which was introduced in June 2007, and calls for designations and escalations to “punish” countries deemed to be guilty of exchange rate manipulation. Many other proposals to adjust, control or limit various elements of the U.S.-China trade relationship also exist, underscoring the belief that the U.S. economy suffers in some way from this trade relationship. More specifically, at the very base of these concerns lies the view that the large trade deficit has reduced U.S. welfare by increasing unemployment and reducing wages. Yet is this an accurate representation of the affect of current trade patterns with China on the U.S. economy?

In order to determine the answer, in this paper we examine some of the economic issues associated with the large overall U.S. trade deficit (which, in 2006, was three and a half times larger than the bilateral U.S.-China trade deficit), and some of policy options in

reducing U.S.-China economic tensions by posing and answering four critical questions.

Question 1: What are the economic problems caused by trade imbalances?

The steady rise in the U.S. trade deficit from 1.7 percent of GDP in 1991 to 6.7 percent in 2006 was not accompanied by either a rise in the unemployment rate or a fall in the total compensation received by the average worker. The average unemployment rate in 1999-2006 was 5 percent compared to 6 percent in 1991-1998; and the total compensation (in 2005 prices) of a full-time worker rose from \$46,614 in 1991 to \$50,523 in 1998 to \$55,703 in 2005. The average 19 percent increase in the compensation received by workers in the 1991-2005 period was shared broadly (but not equally) across the labor force. The average blue-collar worker also received an increase in total compensation over the same period, an 11 percent increase. In short, the frequently mentioned negative effects from the soaring overall trade deficit cannot be seen.

The continued rise in the U.S. wage in 1991-2006 might appear surprising because the post-1990 integration of the Soviet bloc, India and China into the

international division of labor has doubled the number of workers participating in the world economy. Accelerated globalization was, however, not the only significant economic development during this period; accelerated technological innovations (exemplified by the information and communications technology revolution) were perhaps even more significant in their economic effects. The latter development produced large productivity gains that enabled the U.S. real wage to rise despite the greater competition from imports, continued relocation of production facilities to foreign countries, and increased immigration into the United States.

The outcome from the accelerated pace of globalization and the increased pace of technological innovations is a more frequent turnover in jobs in the US, which translates into increased worker anxiety. Note that even if the trade imbalances were eliminated, there would still be a higher rate in job turnover because of the still-ongoing reconfiguration of the international division of labor and the continued fast pace of technological improvements allocation.

Question 2: What are the problems revealed by the appearance of trade imbalances?

On China's side, its dysfunctional financial system is incapable of channeling the abundant savings into private investments, and hence has produced a chronic current account surplus. This unusual situation of where a developing country with high rates of return is lending to the rest of the world is clearly suboptimal. A modern financial system that could assess risks objectively and pool risks to provide various types of insurance, make education and housing loans, and not discriminate against private investors would lower China's savings rate in addition to intermediating all

of China's savings into high-quality investments. Two key components of reforming China's dysfunctional financial system are to increase the transfer of banking technology from abroad and to permit domestic private agents to establish banks that are truly privately owned.

On the U.S. side, the widened current deficits during the Bush (Jr.) era reflected the large budget deficits caused by tax cuts and the wars in Afghanistan and Iraq; and the failure to raise the private savings rate.

Question 3: Is a large yuan appreciation the best cure for the trade friction?

A large appreciation of the yuan against the dollar, say 40 percent, could eliminate the bilateral U.S.-China trade deficit as well as China's overall trade surplus. But this move would only hurt China and not "save" the world. *Ceteris paribus*, in the aftermath of the 40 percent yuan appreciation, foreign companies producing in China for the G7 markets would move their operations to other Asian economies (e.g. Vietnam and Thailand) and export from there, and G7 importers would start importing the same goods from other Asian countries instead. In the absence of a collective appreciation of all Asian currencies, the yuan appreciation will only re-configure the geographical distribution of the global imbalances and not eliminate them. Should the United States then take on the other Asian currencies with a surge of exchange rate diplomacy across the region?

Some foreign analysts have claimed that the absence of a yuan appreciation has caused the Chinese government to lose control of the money supply and hence is threatening China with high inflation. This is a wrong reading of China's economy and its politics.

The fact is that the speculative inflows and growth in foreign exchange reserves cannot expand the money supply without the agreement of the People's Bank of China (PBC). Besides sterilization through open-market operations, PBC also has the use of credit quotas on bank lending. Because all the Chinese banks are state-controlled, and their high-ranking executives are appointed by the state, this means that when faced with the choice of either maximizing bank profits or heeding orders from the Prime Minister's office, the bank chiefs can always be counted on to choose the latter. There has been no question about the Communist Party of China losing control of the money supply since 2002.

From January 2004 until September 2007, money supply growth did not slow markedly because China had chosen not to enforce the credit quotas stringently. First, the inflation rate, although rising, was still low. Second, it was good politics to have a booming economy in the period leading up to the important meeting of the 17th Party Congress in October 2007, which ratified important personnel appointments for the following five years. This means that the higher inflation that appeared in China in the last quarter of 2007 was the consequence of the political business cycle and not of the unchanged value of the yuan.

Question 4: What is to be done?

The optimum solution is a policy package that emphasizes multilateral actions. It is bad economics and bad politics to dwell only on just one region (China alone must change), and/or dwell on just one instrument (renminbi appreciation alone).

China should:

- in the short run, expand state expenditure to soak up excess savings (e.g. rural infrastructure invest-

ments) with an emphasis on import-intensive investments (e.g. airplanes and student training abroad);

- in the short run, accelerate import liberalisation beyond the commitments made in the negotiations for WTO membership;
- in the short run, increase the rate of yuan appreciation to reduce the large depreciation against the Euro in 2006-2007, and accelerate the appreciation if inflation rises;
- lower precautionary savings by providing public social insurance (pension, medical, unemployment schemes); and
- improve financial intermediation by replacing the monopoly state banking system with a predominantly domestic private banking system.

The United States should:

- quicken the reduction in fiscal imbalance;
- introduce tax incentives to raise the savings rate; and
- expand and improve trade adjustment programs and social safety nets, especially those that upgrade the skill of the younger workers.

Most important, in the face of rising protectionist sentiments around the world, the United States and China must work together to further liberalize the multilateral free-trade system (i.e. bring the Doha Round trade negotiations to a successful conclusion), or at the minimum to prevent it from being eroded.

INTRODUCTION: THE ESCALATION OF FRICTION BETWEEN CHINA AND ITS TRADING PARTNERS

China's current account in the balance of payments has been in surplus since 1994 and it has shown a clear upward trend, reaching \$184 billion in 2006 or 9 percent of GDP. As China's capital account is also in persistent surplus because of the large FDI inflows and capital controls on outflows, the result is that China's foreign exchange reserves reached \$1.07 trillion in 2006, the largest in the world. China also became the second-largest holder of U.S. Treasury securities, holding as much as \$353.6 billion, trailing only Japan, which holds \$648.8 billion.

At the time of writing (June 2007), China's overall trade surplus, the China-U.S. bilateral trade surplus, and the China-EU bilateral trade surplus continued to soar,¹ causing a marked escalation in concern about China's unfair trading practices and the gross undervaluation of the yuan. In February 2007, the United States Trade Representative (USTR) filed a case with the World Trade Organization (WTO) against prohibited subsidies in China. This action was followed by two more WTO cases against China in April 2007, challenging market access restrictions on products of copyright-intensive industries, and challenging weaknesses in legal regime for protection and enforcement of copyrights and trademarks.²

In order to adequately appreciate the intensity of the sound and the fury of the anti-China rhetoric, and the global-wide character of these criticisms, it is worthwhile to quote some of multiple news articles that appeared on June 13, 2007, about the trade imbalance issue:³

Peter Mandelson, the EU trade commissioner... called various aspects of China's trade policy "il-

logical," "indefensible" and "unacceptable" and accused [China] of doing nothing to rein in rampant counterfeiting...Mr. Mandelson also refused to grant China market economy status...[because it has] fulfilled [only] one of five criteria.⁴
- *Financial Times*

Peter Mandelson proclaimed that the... [EU] trade deficit with China was no longer "tolerable" and warned that relations with Beijing were now at a "cross-roads"... [Trade is] so skewed that the EU now exports more to Switzerland...than to the entire Chinese market.⁵ - *The Straits Times* (Singapore)

After years of inconclusive skirmishing, trade tensions between the United States and China are about to intensify. ... "We're competing not only with a country with low wages but with very high and heavy subsidies and a rigging of their currency..." says Rep. Sander Levin, D-Mich., chairman of the House trade subcommittee. ... "I hate the term trade war because it is always used when you try to get a fair break..." he says. "Sometimes pressure works."⁶ - *USA Today*

As further confirmation of the growing perception of, and deepening dissatisfaction about, unfair Chinese trading practices, the media also reported that day on the actions being undertaken by the Bush administration and the Chinese government to forestall protectionism:

U.S. lawmakers plan to introduce legislation today seeking to pressure China to raise the value of the yuan to stem a ballooning trade imbalance...Sponsored by Democratic senator Charles Schumer, the bill will lay out the U.S. response whenever countries "unfairly undervalue their

currency." Currently, there are half a dozen measures before the U.S. Congress aimed at China, including proposals to apply sanctions unless it allows the yuan to appreciate by at least 10 percent.⁷ - *The Standard* (Hong Kong)

Turning aside growing congressional anger over the U.S. trade deficit with China, President George Bush's administration today will reject demands that it formally accuse Beijing of "manipulating" its currency to give Chinese companies an edge over American businesses..."There might be an initial sigh of relief in the markets that the Treasury has not taken a more confrontational line, but protectionist pressures are only likely to build," Julian Jessop, chief international economist at Capital Economics in London, warned clients in a note yesterday... Meanwhile Beijing took steps yesterday apparently aimed, at least in part, at defusing U.S. concerns. Chinese authorities permitted an unusually large rise in its tightly controlled currency..."⁸ - *The Wall Street Journal*

[T]he yuan had the biggest gain since the end of a dollar link in July 2005. ...The yuan rose 0.26 percent to 7.6436 against the dollar...[yielding a cumulative gain of] 8.3 percent since...July 2005.⁹ - *International Herald Tribune*

Events then moved quickly. On June 14, 2007, Senators Max Baucus (Democrat, Montana), Charles E. Grassley (Republican, Iowa), Charles E. Schumer (Democrat, New York), and Lindsey Graham (Republican, South Carolina) introduced legislation "to punish China if it did not change its policy of intervening in currency markets to keep the exchange value of the currency, the yuan, low."¹⁰

On June 19, 2007, the International Monetary Fund (IMF) adopted a new country surveillance framework that:

...sets out a catch-all obligation on countries not to adopt policies that undermine the stability of the international system, and lists a set of objective criteria that will be used to indicate whether a country is complying with its commitments. Warning lights will include large-scale currency intervention, the accumulation of reserves and "fundamental exchange rate misalignment" - a term that mirrors language in a bill before the U.S. Congress that would impose penalties on nations that fail to correct such misalignments. ...Rodrigo Rato, managing director of the IMF, said: "This decision is good news for the IMF reform programme and good news for the cause of multilateralism...[because this new framework]" gives clear guidance to our members on how they should run their exchange rate policies, on what is acceptable to the international community and what is not."¹¹

These developments should be seen as warnings that China, Europe and the United States could be marching toward a trade war. In this paper, we examine the reasons for the trade friction with China and propose policies to reduce the friction. Our discussion will focus on four questions:

1. What are the problems caused by the trade imbalances?
2. What are the problems revealed by the appearance of trade imbalances?
3. Is a large yuan appreciation the best cure for the trade friction?
4. What is to be done?

QUESTION 1: WHAT ARE THE PROBLEMS CAUSED BY THE TRADE IMBALANCES?

It is not uncommon to encounter allegations that the bilateral U.S.-China trade deficit represented the export of unemployment from China to the United States. A recent study by Robert Scott (2007) of the Economic Policy Institute used an input-output model to arrive at the claim that the bilateral trade deficit of \$49.5 billion in 1997 caused the loss of 597,300 jobs that year and the 2006 bilateral trade deficit of \$235.4 billion caused the loss of 2,763,400 jobs, and that every state had suffered a net loss in job from the rise in the bilateral trade deficit over 1997-2006. The alleged job loss in 2006 from the bilateral trade deficit implied that the 2006 unemployment rate was 1.21 percentage points higher than if the bilateral trade balance were zero.¹²

There are two major problems with the Scott (2007) study. First, the overall unemployment rate in the United States did not grow in line either with the widening overall U.S. trade deficit or with the widening bilateral U.S.-China trade deficit. The average unemployment rate of 4.9 percent in the 1998-2006 period was actually lower than the average unemployment rates in the immediate previous periods of 1980-1988 and 1989-1997, which were 7.5 percent and 6.0 percent respectively. In reality, the U.S. economy has been a highly successful job-creation machine in the 1997-2006 period.

Second, in the face of the strong demand for labor in the U.S. economy during the period of growing trade deficit, a substantial amount of the so-called job loss could actually have been voluntary departure by workers, rather than involuntary displacement of workers, from import-competing industries that pay low wages or have potentially low-wage growth in the future.

The more sophisticated complaint against the growing trade deficit is that the displacement of workers added to the downward pressures on U.S. wages created by globalization. This downward wage pressure comes from the post-1990 integration of the labor force in the former Soviet Union, India and China (SIC) into the international division of labor. Table 1 shows that the number of workers already engaged in the international division of labor was 1.083 billion in 1990, and the combined labor force of the SIC was 1.232 billion. The division of labor in 1990 was certainly an unnatural one because half of the world's workforce had been voluntarily kept out of it by the SIC's autarkic policies.

The economic isolation of the Soviet bloc started crumbling when the new non-communist Solidarity government of Poland began the marketization and internationalization of the Polish economy on January 1, 1990. The economic transition and political disintegration of the Soviet bloc became irreversible when Yeltsin replaced Gorbachev as the unambiguous leader of Russia in August 1991 and implemented market-oriented reforms in January 1992.¹³

For the Chinese elite, the events in the Soviet Union confirmed that there did not exist a third way in the capitalism-versus-socialism debate. In early 1992, Deng Xiaoping led a successful campaign to put China firmly on the path of convergence to a private market economy.¹⁴ Today, under the heading of a socialist market economy with Chinese characteristics, the Chinese constitution gives private property the same legal status as public property, and the Chinese Communist Party accepts capitalists as members.

In 1991, India faced a balance of payments crisis, and it responded by going well beyond the administration of the standard corrective macroeconomic medicine of

Table 1: The distribution of the global labor force (millions)

(SIC countries = former Soviet bloc, India and China)

	Global Total	The non-SIC countries			The SIC countries			
		Non-SIC Total	Developed Economies	Developing Economies	SIC Total	China	India	Soviet bloc
1990	2,315	1,083	403	680	1,232	687	332	213
2000	2,672	1,289	438	851	1,383	764	405	214

Source: Freeman (2004). Our figure for "total" in 2000 is different from that in Freeman.

fiscal-monetary tightening and exchange rate devaluation into comprehensive adjustments of microeconomic incentives. The trade regime was deregulated significantly, the restrictions on foreign investment were relaxed, reform of the banking sector and the capital markets was initiated, and divestment of public enterprises and tax reform were announced.¹⁵

A decade after the start of the internationalization, the number of workers involved in the international economic system had increased to 2.672 billion in 2000 (with 1.363 billion workers from the SIC), as shown in Table 1. The Heckscher-Ohlin model would predict that this doubling of the world labor, achieved by bringing in cheaper labor from the SIC, would lower the relative price of labor-intensive goods and hence reduce the real wage in the industrialized country.¹⁶

The fact that U.S. capital could now move abroad to set up production facilities in the SIC economies to service the U.S. market and foreign markets meant another channel (besides the cross-border movement of goods) for globalization to depress the U.S. wage rate. It is important to note that the imposition of a very high U.S. tariff would not only drastically curb imports from the SIC but also radically reduce this type of FDI flow from the U.S. to the SIC.

The inconvenient fact is, however, that the U.S. real wage has not fallen. For the full-time worker, her real wage (that includes fringe benefits, e.g. employer-subsidized health coverage), measured in 2005 prices, rose from \$46,614 in 1991 to \$50,523 in 1998 to \$55,703 in 2005.¹⁷ The average 19 percent increase in the compensation received by workers in the 1991-2005 period was shared broadly (but not equally) across the labor force. The average blue-collar worker also received an increase in total compensation over the same period, an 11 percent increase (Woo; forthcoming). One possible explanation to reconcile the theoretical prediction with the real outcome is the remarkably high U.S. productivity growth since the late 1980s, perhaps enabled in large part by the information and communications technology (ICT) revolution. This productivity growth was high enough to prevent the real total compensation (which includes fringe benefits like employer-subsidized healthcare) from declining; and the economic impact of globalization is manifested in a diminished labor share of GDP.

While the Heckscher-Ohlin model does provide a coherent mechanism for globalization to lower the labor share of U.S. income and to widen the distribution of U.S. wages, the inconvenient truth is that China cannot be blamed as the most influential factor in these two

wage outcomes even though China accounted for 764 million of the combined SIC labor force of 1.383 billion in 2000. China is not the main culprit because there have been three other independent developments that also had important consequences for U.S. wages.

The fact that U.S. capital could now move abroad to set up production facilities in the SIC economies to service the U.S. market and foreign markets meant another channel for globalization to depress the U.S. wage rate.

First, there have been technological innovations that have substituted capital for labor; for example, fewer secretaries are needed because answering machines can now convert messages into voice files and email them to traveling professionals. Technological innovations have also transformed many of what have been traditionally non-tradable services into tradable services, allowing jobs to be outsourced to foreign service providers. For example, the ICT revolution has allowed offshore call centers to handle questions from U.S. customers, offshore accountants to process U.S.-based transactions, and offshore medical technicians to read the X-rays of U.S. patients.¹⁸

Second, there have been institutional changes that attenuated labor share of income. Union membership has declined, reducing the bargaining power of labor. There has also been an upward shift in the compensation norms for high-level executives; many times, by using vehicles like stock options which in effect make them co-owners of the company. This shift in compensation norms could reflect a combination of a shift in social attitudinal norms, and more collusion between managers and their boards.¹⁹

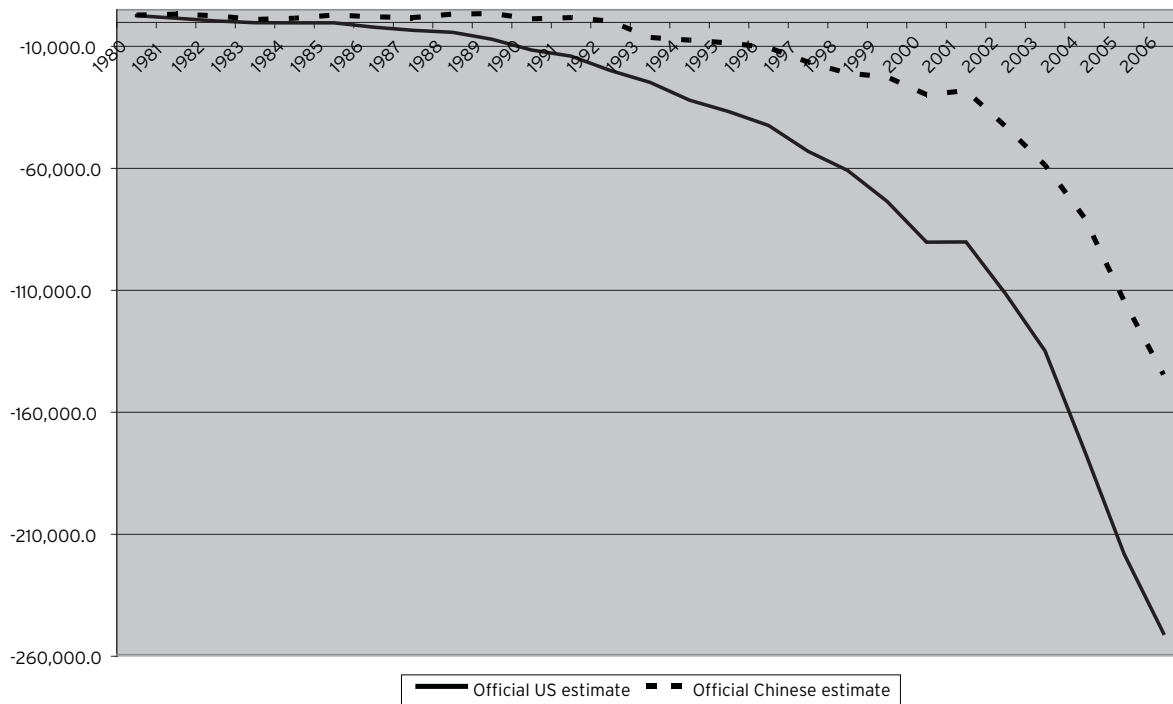
Third, there was increased immigration into the United States (before 2001), especially a disproportionate inward immigration of low-skilled labor.²⁰

Based on a partial review of the literature, our assessment is that the pressure that is preventing U.S. wages (especially wages of unskilled labor) from rising in line with productivity growth can be roughly decomposed among the various factors as follows:

- 70-80 percent of the downward wage pressure is from technological innovations (that enabled capital-labor substitution and outsourcing abroad), and wage-weakening institutional changes;
- 5-10 percent of the downward wage pressure is from inward immigration; and,
- 15-20 percent of the downward pressure is from import competition and relocation of manufacturing activities abroad.

Since there has been neither a rise in the unemployment rate nor a fall in worker compensation, the well-known rise in the anxiety level of the median worker in the United States can be blamed on these two factors. In our opinion, the rise in worker anxiety has been the result of a faster rate of job turnover caused by the accelerated pace of globalization and by the higher rate of technological innovations. In short, the popular outcry in the U.S. and the EU against China's trade surpluses is really misplaced. Even if China's trade balance were zero, the pains of structural adjustment and income redistribution caused by technological innovations, institutional changes, globalization, and immigration would still be there. The additional pain from the incremental structural adjustment caused by the widening trade deficit is minor in comparison.

Figure 1: US-China trade deficit, discrepancy between US and Chinese data (US\$million)



QUESTION 2: WHAT ARE THE PROBLEMS REVEALED BY THE APPEARANCE OF TRADE IMBALANCES?

Before discussing the economic problems in China and the U.S. that generated the trade imbalances, we should mention a troubling basic data issue, which is that there is strong disagreement over what is the size of the bilateral U.S.-China trade deficit. Figure 1 shows that the Chinese figure for the bilateral deficit in 2006 (U.S.\$145 billion) was only 57.7 percent of the U.S. figure (U.S.\$251 billion).²¹ While there is a large gap between these two estimates from 2006 data, this gap actually represents an improvement in accuracy for the following two reasons. First, the gap was usually much larger in previous years, e.g. the 1993 Chinese estimate of the trade deficit was only 25.6 percent of the U.S. estimate. Second, the recent period is one in which the two countries could

actually agree whether the bilateral balance was in surplus or in deficit! Throughout the 1983-1992 period, the Chinese data showed China to be running a deficit in its trade with the U.S. but the U.S. data showed a surplus instead.

Given these wildly different measures of the size of the bilateral trade imbalance, it is only to be expected that each side would regard the bilateral trade imbalance with a different degree of concern. The primary reason for the discrepancy between the Chinese and U.S. estimates is the different national treatment of U.S.-China trade that goes through Hong Kong.²² Drawing upon the work of Feenstra, Hai, Woo and Yao (1999), for the analysis in this paper, we will measure the bilateral U.S.-China trade balance as the simple average between the U.S. estimate and the Chinese estimate as reported in the IMF's DOT database.²³

Figure 2: China trade account balance (US\$ million)

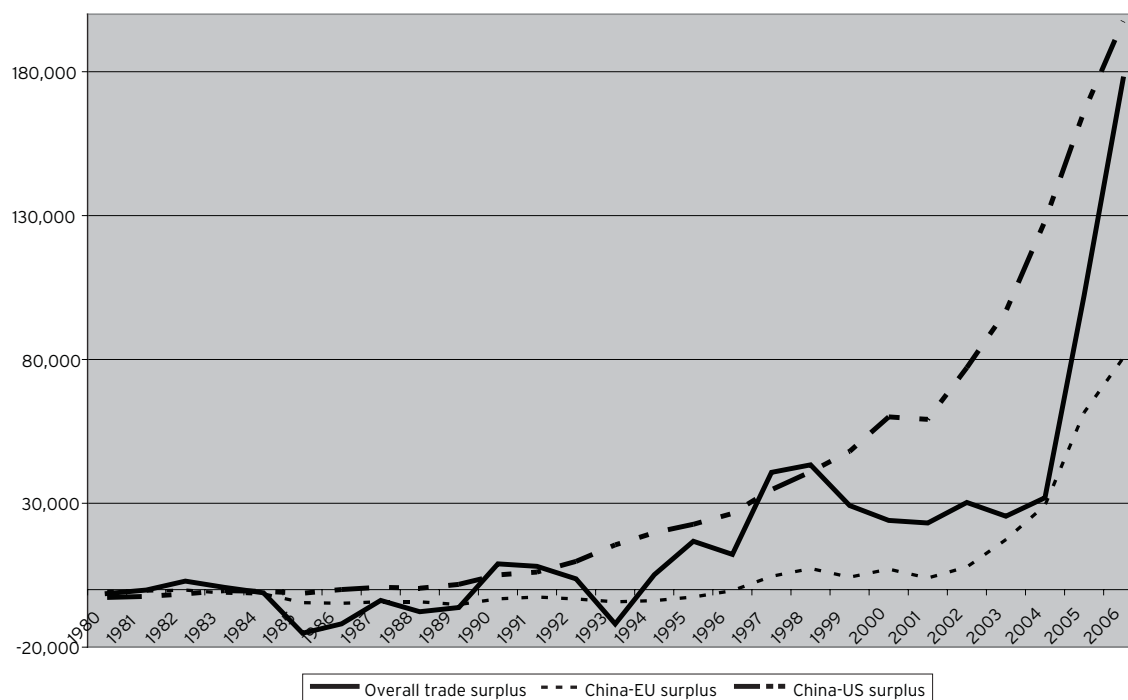


Figure 2 displays three items: China's overall trade balance, the bilateral China-U.S. trade balance, and the bilateral China-EU trade balance. China has been running a surplus on its U.S. trade since 1986, a surplus on its EU trade since 1997, and a surplus on its overall trade since 1994. Since 1986, except for the four years (1990, 1991, 1997 and 1998) associated with an economic downturn in China, the bilateral surplus with the United States has exceeded China's overall trade surplus, meaning that China is running massive deficits in its trade with some of the other trade partners.

The changing configuration of China's bilateral trade balances reflects mainly the steady expansion of production networks into China. In this new geographical division of the production of components and of the production stages in manufacturing, China usually makes the cheaper components and assembles the final products by combining the domestically produced components with imported components. The

fast transfer of manufacturing and assembly operations from Japan, Taiwan and South Korea to China translates directly into high growth in the China-U.S. bilateral trade surplus because this transfer reduces the bilateral Japan-U.S. trade surplus and the bilateral South Korean-U.S. trade surplus correspondingly. In short, the China-U.S. trade deficit could be reduced by transferring the assembly operations of Korean, Taiwanese, Japanese, and European production networks to Vietnam, but the Vietnam-U.S. trade deficit would then increase, leaving the overall U.S. trade balance unchanged.

China's chronic and growing overall trade surplus reveals a deep-seated serious problem in China's economy: its dysfunctional financial system. This problem is revealed by the aggregate-level accounting identity that the overall current account balance (of which, in China, the overall trade account is the biggest part) is determined by the fiscal position of the government,

and the savings-investment decisions of the state-controlled enterprise (SCE) sector and the private sector.²⁴ Specifically:

$$CA = (T - G) + (S_{SCE} - I_{SCE}) + (S_{private} - I_{private})$$

where

CA = current account in the balance of payments

CA = (X - M) + R

X = export of goods and non-factor services

M = import of goods and non-factor services

R = net factor earnings from abroad (i.e. export of factor services)

T = state revenue

G = state expenditure (including state investment)

S_{SCE} = saving of the SCEs

I_{SCE} = investment of the SCEs

$S_{private}$ = saving of the private sector

$I_{private}$ = investment of the private sector

The Chinese fiscal position (T-G) has for the last decade been a small deficit, and so it is not the cause for the swelling current account surpluses in the 2000s. The current account surplus exists because the sum of savings by SCEs and the private sector exceeds the sum of their investment expenditures. The current account surplus has expanded steadily because the non-government savings rate has been rising steadily. We will argue later that there is a link between the existence of the current account surplus and the growth of the surplus.

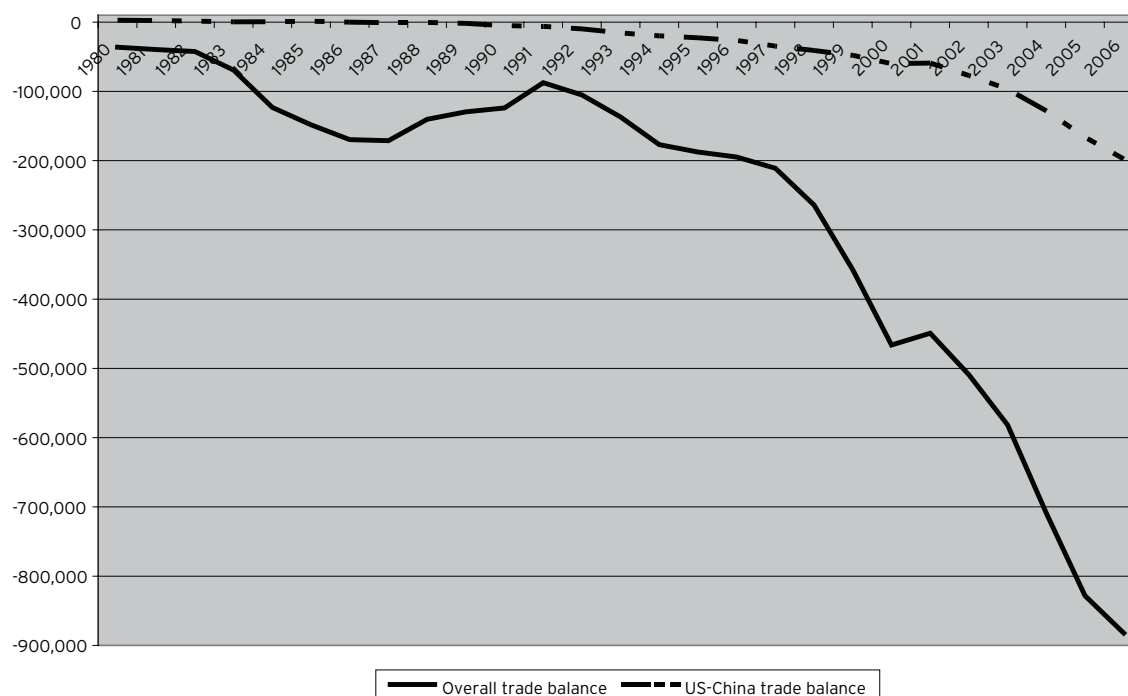
Why has China's financial system failed to translate the savings into investments? Such an outcome was not always the case. Before 1994, the voracious absorption of bank loans by SCEs to invest recklessly kept the current account usually negative and the creation of nonperforming loans (NPLs) high. When the government implemented stricter controls on the state-owned banks (SOBs) from 1994 onward (e.g. removing

top bank officials whenever their bank lent more than its credit quota or allowed the NPL ratio to increase too rapidly), the SOBs slowed down the growth of loans to SCEs. This cutback created an excess of savings because the SOB-dominated financial sector did not then re-channel the released savings (which were also increasing) to finance the investment of the private sector. This failure in financial intermediation by the SOBs is quite understandable. First, the legal status of private enterprises was, until recently, lower than that of the state enterprises; and, second, there was no reliable way to assess the balance sheets of the private enterprises, which were naturally eager to escape taxation. The upshot was that the residual excess savings leaked abroad in the form of the current account surplus. Inadequate financial intermediation has made developing China a capital exporting country!

This perverse current account outcome is not new. Before the mid-1980s, Taiwan experienced this same problem when all Taiwanese banks were state-owned and were operated under a civil service regulation that required each loan officer to repay any bad loan that he approved. The result was a massive failure in financial intermediation that caused Taiwan's current account surplus to be 21 percent of GDP in 1986. The reason why China has not been producing the gargantuan current account surpluses seen in Taiwan in the mid-1980s is because of the large amount of SCE investments.

Why is the savings rate of the non-government sector rising? The combined savings of the SOE and non-SOE sector rose from 20 percent in 1978 to 30 percent in 1987, and has remained above 45 percent since 2004. In discussions on the rise of the savings rate, a common view is that the rise reflects the uncertainty about the future that many SOE workers feel in the face of widespread privatization of loss-making SOEs. We find this explanation incomplete because it seems

Figure 3: USA trade imbalance (US\$ million)



that there also been a rise in the rural saving rate even though rural residents have little to fear about the loss of jobs in the state-enterprise sector because none of them are employed there.²⁵

We see two general changes that have caused both urban and rural saving rates to rise significantly. The first change relates to increased worries about the future by the Chinese. The steady decline in state subsidies to medical care, housing, loss-making enterprises, and education, and mismanagement of pension funds by the state have led people to save more to insure against future bad luck (e.g. sickness, job loss), buy their own lodging, build up nest eggs for retirement, and invest in their children.

The second change is the secular improvement in the official Chinese attitude toward market capitalism. Given the high rate of return to capital, this increasingly business-friendly attitude in the Communist

Party of China has no doubt encouraged both rural and urban residents to save for investment, i.e. greater optimism about the future has spawned investment-motivated saving.²⁶ Our investment-motivated savings hypothesis is not new. According to Jeffrey Williamson (1988), the historical record of Western Europe and North America shows that “investment demand seems to have been the driving force behind private saving and accumulation, past and present.”

In our explanations for the existence of the current account surpluses and the growth of the surplus, there is a common element in both: China’s financial system. The fact is that savings behavior is not independent of the sophistication of the financial system. An advanced financial system will have a variety of financial institutions that would enable pooling of risks by providing medical insurance, pension insurance, and unemployment insurance; and transform savings into education loans, housing loans, and other types

of investment loans to the private sector. *Ceteris paribus*, the more sophisticated a financial system, the lower the savings rate - a proposition that finds formal statistical support in Liu and Woo (1994) and Woo and Liu (1995). China generates the current account surplus shown in Figure 2 because of inadequate financial intermediation, and the surplus grows over time because the dysfunctional financial system fails to pool risks to reduce uncertainty-induced savings and fails to provide loans to reduce investment-motivated saving.

Figure 3 displays U.S. overall trade balance, and the bilateral U.S.-China trade balance. The former has been in deficit since at least 1980, and it has always been much bigger than the latter. This pattern of imbalances suggests three conclusions. First, the bilateral U.S.-China trade deficit is only 22.4 percent of the overall U.S. trade deficit, and so even if the bilateral trade balance were brought to zero by a tariff aimed at China, the overall trade deficit is still going to be

large. Second, the bilateral trade deficit surplus is created by the same factor that is causing the overall trade deficit, which is the large annual budget deficit created by the 2001-enacted Bush tax cuts and the post-2001 growth in defense expenditure. Third, the highly sophisticated U.S. financial system (that pioneered the subprime mortgage market and corporate junk bonds to enable consumption and investment) has lowered the U.S. private savings rate.

Clearly, the sustained nature of the U.S. overall trade deficit was possible only because foreign lenders had faith in the growth prospects of the U.S. economy, and because the East Asian central banks were willing to hold an increasing amount of U.S. financial instruments. However, because the U.S. Congress is unhappy about the trade deficits, the outcome is either an international confrontation or a cooperative solution. Our discussion of the latter is contained in our answer to Question 4.

QUESTION 3: IS A LARGE YUAN APPRECIATION THE CURE FOR THE TRADE FRICTION?

China has been under foreign pressure at least since 2002 to appreciate the yuan significantly. In December 2002, Haruhiko Kuroda and Masahiro Kawai (2002) of Japan's Ministry of Finance called for a yuan appreciation in order to stop China from exporting its price deflation to the rest of the world. In September 2003, U.S. Treasury Secretary John Snow declared that China should appreciate the yuan as part of its international responsibility to eliminate imbalances in the global balance of payments.²⁷ In September 2003, Morris Goldstein and Nicholas Lardy (2003) of the Peterson Institute for International Economics claimed that an immediate yuan appreciation of 15 to 25 percent would be for China's own good because this step would remove "the incentive for further speculative capital inflow and reserve accumulation. No longer would the foreign component of the money supply be working at cross-purposes with the needs of domestic stabilization."

In March 2007, Morris Goldstein (2007) offered the opinion to the U.S. Congress that:

[The] renminbi (RMB) is now grossly undervalued—on the order of 30 percent or more against an average of China's trading partners and 40 percent or more against the U.S. dollar. ... [The] U.S. Treasury has refused to label China as a "currency manipulator" despite overwhelming evidence to the contrary and the managing director of the International Monetary Fund continues to reject the role of global umpire for exchange rate policies that was laid out for the Fund in its charter...China should deliver right away a meaningful "down payment" of a 10-15 percent appreciation of the RMB from its current

level...Failure by China to drastically reduce its large-scale, one way intervention in the exchange market should result in a finding of "currency manipulation" in the Treasury's May 2007 report to the U.S. Congress. ...Finally, the IMF should return to its roots by taking up in earnest the role that its founders set out for it as the global umpire for exchange rate policies.

We will use the format of question and answer to analyze the question posed in the heading of this part of the paper and to assess the validity of the above assertions.

Did China export deflation as Kuroda and Kawai (2003) had claimed? The fundamental problem with the Kuroda-Kawai's claim is that it is impossible to blame Japan's deflation on China's deflation because the timing is wrong. Japan's deflation started with the bursting of the stock market-cum-real estate bubble in 1992, which was well before China's trade account surpluses started to soar in the early 2000s. If anything, trade with China since 2003 has been an important stimulus to Japanese economic recovery. Sustained high Chinese investment spending has sucked in large amounts of intermediate inputs, machinery, and capital equipment from Japan.

Would a yuan appreciation reduce global imbalances as Fred Bergsten (2007) had claimed? There is little doubt that a large appreciation of the yuan against the dollar, say 40 percent as suggested by Morris Goldstein (2007), could eliminate the bilateral U.S.-China trade deficit as well as China's overall trade surplus. But this move would only hurt China and not "save" the world. *Ceteris paribus*, in the aftermath of the 40 percent yuan appreciation, foreign companies producing in China for the G7 markets would move their operations to other Asian economies (e.g. Vietnam and Thailand) and export from there, and G7

importers would start importing the same goods from other Asian countries instead. In the absence of a collective appreciation of all Asian currencies, the yuan appreciation will only re-configure the geographical distribution of the global imbalances and not eliminate them.

How could a collective regional appreciation against the U.S. dollar be achieved? It would be naive to assume that Asian currencies tend to move closely together when one of them moved a large amount like 40 percent. The last time the Asian currencies moved together by a large amount was during the Asian financial crisis of 1997-1998, and China did not join in despite many predictions to the contrary. Should the U.S. government now expand its currency appreciation campaign serially to other East Asian countries and undertake a “surge” in exchange rate activism on any country that pushes back? For many reasons, this would not be the desirable overarching international economic strategy for the United States even if it could force through a generalized appreciation of all the Asian currencies in the end.

Would a large simultaneous collective appreciation of the Asian currencies be an unambiguous gain for the U.S.? We are not sure. Immediate cessation of the foreign financing of the U.S. savings gap would translate into an immediate zero current account balance, and this would require an immediate increase in U.S. exports and (or) an immediate decrease in U.S. imports. Exports would increase quickly only either if there were substantial excess production capacity or if there were a substantial drop in domestic demand that freed up the domestic goods for sale abroad. Imports would decrease quickly only either if there were excess production capacity (to enable replacement of imports) or if there were a substantial drop in domestic demand that reduced the use of consumer goods and inputs. Since there is no substantial excess

production capacity in the U.S. economy today, the immediate elimination of the current account deficit would require a huge drop in domestic demand, which would have its origin in a large negative wealth shock, possibly in the form of a stock market collapse or an inflationary spike.²⁸

Would the absence of a yuan appreciation cause high inflation in China as Goldstein and Lardy (2003) had claimed? The growth of Chinese money supply has not slowed drastically despite the heightening of anti-inflation rhetoric by the Chinese government in response to the continued high growth of investment expenditure. Has the Chinese government lost control of its money supply as a number of analysts have warned? Not at all. The speculative inflows and growth in foreign exchange reserves cannot expand the money supply without the agreement of the People’s Bank of China (PBC). Besides sterilization through open-market operations, China also has the use of credit quotas on bank lending. The fact is that all the Chinese banks are state-controlled, and their high-ranking executives appointed by the state. Given the choice between maximizing bank profits or heeding orders from the Prime Minister’s office, the bank chiefs can always be counted on to choose the latter. There has been no question about the Communist Party of China losing control of the money supply since 2002.

From January 2004 until September 2007, money supply growth did not slow markedly because China had chosen not to enforce the credit quotas stringently. First, the inflation rate, although rising, was still low. Second, it was good politics to have a booming economy in the period leading up to the important meeting of the 17th Party Congress in October 2007, which ratified important personnel appointments for the following five years. This means that the higher inflation that appeared in China in the last quarter of

2007 was the consequence of the political business cycle and not of the unchanged value of the yuan.

What is the correct level for the exchange rate? The *Economist* magazine constructs a purchasing-power parity (PPP) exchange rate based on the prices of Big Mac sandwiches sold in different countries. In 2006, it cost 10.4 yuan to buy a Big Mac in China and \$3.15 in the U.S., and so the PPP exchange rate was 3.3 yuan per U.S. dollar in 2006 compared to the actual (nominal) exchange rate of exchange rate of 8 yuan per U.S. dollar. So is it meaningful to hence say that the Chinese exchange rate was under-valued by almost 60 percent in 2006? The answer is no because the prices of the sandwiches included nontradable inputs, and the prices of nontradables were lower in China than in the United States. In general, the prices of nontradables are lower in developing countries than in the developing countries because labor costs are lower in the former. With economic development, the prices of nontradables in the developing country will rise to bring the price ratio of nontradables to tradables closer to the price ratio in the developed country.

To see that the gap between the usual PPP exchange rate and the actual exchange rate reflects the development gap between the two countries, we first make the following definitions:

(a) Defining the consumer price index in China and United States

$$\text{CPI of China, } \text{CPI}^C = (1-a) P_T^C + a P_N^C$$

$$\text{CPI of United States, } \text{CPI}^U = (1-a) P_T^U + a P_N^U$$

where

CPI = consumer price index

C = China

U = United States of America

P_T^i = price of tradable goods in country i

P_N^i = price of non-tradable goods in country i

a = weight of non-tradable goods in price index

(b) Defining the PPP exchange rate

$$e^{\text{PPP}} = \text{CPI}^C / \text{CPI}^U$$

We next state the equilibrium conditions.

(a) Goods arbitrage

$$P_T^C = e^{\text{actual}} P_T^U$$

where

e^{actual} = actual (nominal) exchange rate expressed as number of yuan per U.S.\$

(b) Relationship between prices of tradables and nontradables within each country

for developing China, $P_N^C = d P_T^C$

for developed United States, $P_N^U = f P_T^U$

(c) The difference between a developed and developing country is that relative price of nontradables is higher in the former

$$f > d > 0$$

We can now derive the following relationship between the PPP exchange rate and the actual exchange rate:

$$e^{\text{PPP}} = \text{CPI}^C / \text{CPI}^U$$

$$e^{\text{PPP}} = [(1-a+ad)/(1-a+af)] e^{\text{actual}}$$

$$e^{\text{PPP}} < e^{\text{actual}}$$

The above exercise above shows that it is conceptually difficult to determine the “correctness” of a country’s exchange rate on the basis of PPP exchange rates. The actual exchange rate of a developing coun-

try would always be “undervalued” in relation to the PPP exchange rate, and it would be ludicrous to demand that the government of the developing country set its exchange rate equal to the PPP exchange rate (because this is not a sustainable policy).

One meaningful definition of the “correct exchange rate” is that it is the “market-clearing exchange rate” – the exchange rate that is generated by the foreign exchange markets in the absence of interventions by any central bank. The fact that the People’s Bank of China has been accumulating foreign reserves every period means that the yuan is under-valued according to this definition. However, what would happen if China were to now go further in its marketization of foreign exchange transactions by removing its capital controls? Diversification of asset portfolios by private Chinese agents would surely result in a great outflow of funds, possibly causing the yuan to depreciate instead. In such a case, the present exchange rate of 8 yuan per dollar would be “over-valued” compared to the “complete free market exchange rate.” Of course, no one knows whether the “complete free market exchange rate” would be higher or lower than 8 yuan per U.S. dollar.

Suppose the value of the “complete free market exchange rate” is 6.5 yuan per U.S. dollar, and the “market-clearing exchange rate with controls on capital outflows” is 4.5 yuan per U.S. dollar, and suppose the government stops intervention immediately and then removes capital controls a few years later after it has strengthened the supervision, management, and technical capability of the domestic financial institutions. One plausible result of this particular two-step market liberalization (which we call Option A) would be yuan appreciation to 4.5 yuan per dollar upon cessation of foreign market intervention followed by yuan depreciation to 6.5 yuan per dollar upon removal of the capital controls.

Suppose China adopts another form of two-step liberalization (Option B), incremental appreciation of the yuan and removal of the capital controls after a few years. Option B is better than Option A because the exchange rate overshooting in Option A creates an unnecessary to-and-fro movement in resources. As mentioned, the removal of capital controls could very well cause the yuan to depreciate past 8 yuan per dollar, say, to 9.5 yuan per dollar, meaning that Option A would result in very severe exchange rate overshooting compared to Option B.

In effect, the Chinese government has been implementing a form of Option B since July 2005. In our opinion, the Chinese government has chosen a speed of exchange rate adjustment that is too slow, causing the yuan to depreciate significantly against the euro. We recommend that the Chinese government increase the speed of the yuan appreciation – but not in the form of an immediate discrete 10-15 percent appreciation as advocated by Goldstein (2007).²⁹

In our opinion, the instinctive call by some economists for the use of the exchange rate mechanism to solve China’s external imbalance is only partially correct.

In our opinion, the instinctive call by some economists for the use of the exchange rate mechanism to solve China’s external imbalance is only partially correct. Given China’s capital controls, a freely floating currency regime could mean a value for the yuan that would be greatly over-appreciated compared to what its value would be under free capital flows, and could therefore reduce economic growth significantly.³⁰ Freeing capital flows is not, however, an option at this time. Given the weakness of the balance sheets of China’s state-owned banks (SOBs) and the considerable embezzlement of state assets that has occurred, and the experience with the Asian financial crisis, we

advise against allowing the free movement of capital in the short term.

The correct way to think about exchange rate management is to analyze the issue within the context of overall macroeconomic management and not just in regard to its impact on the balance of payment. It is very likely that there are alternate combinations of macroeconomic policies that would produce results superior to the one generated by appreciating the

yuan alone. The general point is that because the balance of payments is only one of the main outcomes of concern³¹ and the exchange rate is only one of the ways³² to affect the balance of payments, it is seldom optimal to concentrate exclusively on one policy target (which does not dominate the other policy targets in importance) and then to employ only one particular policy tool (which is chosen idiosyncratically) to achieve that one policy target.

QUESTION 4: WHAT IS TO BE DONE?

The real source for the anxieties that have given rise to the present U.S. obsession with yuan appreciation is not the large trade imbalances but the large amount of structural adjustment necessitated by the acceleration of globalization and of labor-saving technological progress. Dollar depreciation and trade barriers will slow down the process of structural adjustment but will not stop it because the main driver of structural adjustment in the United States is technological progress. The optimum solution is a policy package that emphasizes multilateral actions to achieve several important objectives. It is bad economics and bad politics to dwell on just one region (China alone), dwell on just one instrument (RMB appreciation alone), and dwell entirely on one target (external imbalance).

We will start by stating what should be done in the United States. Congress should quicken the reduction in fiscal imbalance, and expand trade adjustment programs, especially those that upgrade the skills of the younger workers. The Trade Adjustment Assistance (TAA) program still functions inadequately after its overhaul in 2002. Lael Brainard (2007) reported that:

Participation has remained surprisingly low, thanks in part to confusing Department of Labor interpretations and practices that ultimately deny benefits to roughly three-quarters of workers who are certified as eligible for them. TAA has helped fewer than 75,000 new workers per year, while denying more than 40 percent of all employers' petitions. And remarkably, the Department of Labor has interpreted the TAA statute as excluding the growing number of services workers displaced by trade...Between 2001 and 2004, an average of only 64 percent

of participants found jobs while they participated in TAA. And earnings on the new job were more than 20 percent below those prior to displacement.

The TAA program is in clear need of further improvement. Brainard's (2007) proposal for the establishment of wage insurance is an excellent way to bring the U.S. social safety more in line with the type of structural adjustments driven by globalization and technological changes.

What is to be done in China? The obvious short-run policy package has three components. First, the steady process of yuan appreciation begun in July 2005 should be quickened, and be used more aggressively as an anti-inflation instrument. Second, import liberalization should be accelerated (e.g. implement seriously the commitments made in negotiations for WTO membership like intellectual property rights protection) and expanded beyond WTO specifications.

The third component of the short-run policy package is to have an expansionary fiscal policy (e.g. rural infrastructure investments) to soak up the excess savings, with an emphasis on import-intensive investments (e.g. buying airplanes and sending students abroad). There must be time limits put on the expanded public works and SCE investments because, in the long-run, the increased public investments could follow an increasingly rent-seeking path that is wasteful (e.g. building a second big bridge to a lowly-populated island to benefit a politically-connected construction company as in Japan), and the increased SCE investments could convert themselves into nonperforming loans at the SOBs.

It is now common to hear calls for China to rebalance its growth path by reducing savings to increase con-

sumption. This advice on increasing consumption cannot be wrong. However, consumption in China today is largely under the control of individual families and firms. They have probably already tried their best to optimize their consumption given all the constraints they face, and are unlikely to welcome the government telling them how to spend their money.

Since the health insurance and social security networks in China are in their infancy, many Chinese people are choosing to save a great deal of money as a hedge against severe illness. In the absence of student loan programs, families are also choosing to save a great deal for their children's education. Many middle class Chinese families have bought property in anticipation of capital gains but have refrained from moving into the new property because roads, subways and schools for many newly developed residential communities are underdeveloped. These are their best choices given the structural and economic constraints of Chinese society. As a result, the consumption of Chinese households remains low and savings rates remain high. All of these factors beg the question: How can China increase domestic consumption?

In the context of the above examples, the answers are quite straight forward: Build an integrated health insurance system; create student loan and scholarship programs; and build more roads, subways, and schools.³³ However, the optimum solution to the problem of excess saving is not for the government to absorb it by increasing its budget deficit but to establish an improved mechanism for coordinating private savings and private investments. The establishment of a modern financial system will not only achieve this objective, it will also enhance welfare and lower the savings rate by pooling risks through vehicles like medical insurance and pension insurance. In a nutshell, China's main challenge today is to develop smoothly function-

ing financial, planning, and regulatory systems that can employ the remaining rural surplus labor (as indicated by an average wage of about \$120 per month for 480 million rural and migrant workers) and surplus capital, which now shows up now as China's sustained current account surplus and rising foreign exchange reserves.

The most important priority for financial sector development is the appearance and growth of competitive *domestic* private banks. As China is required by its WTO accession agreement to allow foreign banks to compete against its SOBs on an equal basis by 2007, it would be akin to self-loathing not to allow the formation of truly private banks of domestic origin. There is no reason to favor foreign private banks over domestic private banks, and no reason why China should not allow its best financial minds compete with, and achieve the same success of, the best foreign financial minds.

We therefore recommend that following the recapitalization of the big four state banks, at least two of them should be broken into several regional banks, and that the majority of these regional banks should be privatized. At the same time, the laws on the establishment of new banks should be loosened, and interest rates should be deregulated. However, it is most crucial that financial sector liberalization proceeds no faster than the development of the financial regulatory ability of the state. Even then, the danger of substituting financial crash for financial repression is still a real one. A modern financial system requires a modern system of financial supervision and prudent regulation for its proper functioning.

It would be a good idea to sell a few of the regional state banks to foreign banks. This would facilitate the transfer of modern banking technology to Chinese

banks as the more local staff the foreign bankers train, the larger the pool of future managers for Chinese-owned banks. An accelerated process of promoting the growth of sound domestic private financial institutions and allowing the entry of foreign financial institutions would certainly shorten the time it would take for Shanghai to assume its rightful place among the major international financial centers, and to contribute to more efficient intermediation of the world's savings.

An important part of financial reform should be the promotion of the development of sound rural financial institutions. The government can usefully draw upon the wealth of international experiences with various schemes in developing countries to direct investment credit to the rural areas. In particular, we wish to draw attention to the successful Indonesian experience of establishing a self-sustaining and profitable banking system (the *Unit Desa* system) in the countryside to provide a starting point for discussing how to accelerate financial development in rural China.³⁴ China should allow the appearance of new small-scale rural financial institutions that will mobilize local savings to finance local investments as quickly as adequate prudential supervision can be put into place.

The widespread international attention on the value of the yuan is possibly the first time in international

monetary history that the value of the currency of a developing country has so greatly exercised the finance ministries and central banks of the largest developed countries for such a sustained period. This anomalous situation reveals two noteworthy points about China's return to the international stage. One, it shows the significant economic impact that China is now already having on the world. Two, it portends that the anticipated continued fast growth of China in the next two decades will not only force more structural adjustments in other countries but will also require that China assumes a broader "global system" perspective in resolving disputes caused by cross-border spillovers from its policies. The most important and obvious area for collaboration between China and the developed economies at this point in time is to work together to further liberalize the multilateral free-trade system, and at the minimum to prevent it from being eroded.

As China continues to grow rapidly, there is the unfortunate possibility that the range of international disputes could expand, possibly in the medium term, to include international concerns about China's public health readiness and environmental protection. Hopefully, the world will be more multilateral in its approach to the solution of these future common issues rather than insisting on a unilateral solution by China as in the present case of the yuan.

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1. At the end of May, the National Development and Reform Commission predicted that 'China's trade surplus will swell to between \$250 billion to \$300 billion this year, driven by price competitiveness and strong external demand...The surplus for the first four months of this year totaled \$63.3 billion, up 88% from the same period of last year,' see "China Says Trade Surplus Isn't Likely to Shrink Soon," *Wall Street Journal*, May 30, 2007. In mid-June, it was revealed that China's overall trade surplus had widened to US\$22.45 billion in May 2007, which is a "33 percent gain over April's figure; see "US lawmakers turn up yuan heat," *The Standard* (Hong Kong), June 13, 2007.
2. Details of these three WTO cases are found in United States Trade Representative (2007a, 2007b, and 2007c).
3. Neither the date nor sample of newspapers was randomly selected. These were the newspapers that were on the Singapore Airlines flight from Singapore to San Francisco (via Hong Kong) on the day of my travel.
4. "Surplus fuels EU-China war of words," *Financial Times*, June 13, 2007. The article also reported that:

[Peter Mandelson] wants greater access for European companies to China and a crackdown on piracy - threatening extra tariffs or import quotas if not. He also wants the renminbi pegged to a basket of currencies.
5. "EU's ties with China at crucial crossroads," *The Straits Times* (Singapore), June 13, 2007.
6. "Tensions push Congress to get even with China," *USA Today*, June 13, 2007.
7. "US lawmakers turn up yuan heat," *The Standard* (Hong Kong), June 13, 2007.
8. "Bush, resisting Congress, won't slap China on yuan," *The Wall Street Journal* (Asia edition), June 13, 2007.
9. "Yuan gain is biggest since end of peg," *International Herald Tribune*, June 13, 2007.
10. "4 in Senate Seek Penalty for China," *The New York Times*, June 14, 2007.
11. "IMF set to scrutinise exchange rate policies," *Financial Times*, June 19, 2007.
12. The U.S. civilian labor force in 2006 was 151.4 million; Table B-35 in United States President (2007).
13. For details and analysis of the economic transition in the former Soviet bloc and China, see the papers in Woo, Parker and Sachs (1997).
14. Sachs and Woo (2000, 2003).
15. Acharya (2004).
16. More accurately, the wage of the formerly isolated SIC worker would rise while the wage for the worker in the industrialised country would fall.
17. I thank Gary Burtless for sharing these estimates with me. These estimates were the basis of his Congressional testimony on the movements of U.S. wages; Burtless (2007b).
18. There is a large empirical literature on relative impact of technological changes and globalization on the U.S. wage rate, notable contributions include Sachs and Shatz (1994), and Feenstra and Hanson (1996 and 1998).
19. Akerlof (2007) is a recent discussion on "norms" and their economic consequences.
20. Borjas (1994) and Ottaviano and Peri (2005) are good discussions of this topic.
21. The data are from the Direction of Trade (DOT) database maintained by the International Monetary Fund (IMF).
22. See Feenstra, Hai, Woo and Yao (1999), i.e. FHWY (1999), for the details of the different national treatment. This study re-estimated the export and import data of China-US trade, and reduced

- the gap between the two estimates, e.g. the \$29 billion gap between the two official figures in 1996 was reduced to \$5 billion after revision of the data by FHwy.
23. The simple average of the DOT data was closer than the simple average of the official data to the simple average of the FHwy-revised data; the latter two are reported in Table 1 of FHwy (1999).
 24. The SCE category covers companies that are classified as SOEs (state-owned enterprises); and joint-ventures and joint-stock companies which are controlled by third parties (e.g. legal persons) who are answerable to the state.
 25. The Economist Intelligence Unit (2004, pp. 23) reported that "farmers' propensity to save seems to have increased."
 26. Liu and Woo (1994) and Woo and Liu (1995) contain formal modeling and econometric support for the investment-motivated saving hypothesis.
 27. For example, "Snow calls on Beijing to let currency float," *Financial Times*, 2 September 2003.
 28. Considerations like this might be the reason why Goldstein and Lardy (2003) and Goldstein (2007) advocated a two-step strategy of yuan appreciation, a modest-sized appreciation followed incremental appreciation.
 29. Our analysis therefore leads us to agree with the three recent policy positions of the U.S. Treasury: (1) China must increase "the pace of reform in financial services market" (Paulson, 2007); (2) China has not engaged in currency manipulation; and (3) China should increase the rate of yuan appreciation.
 30. In Robert Mundell's opinion: "China's growth rate could fall by half and foreign direct investment (FDI) could slow to a crawl if the country were to abandon its long-standing support of pegging the currency" quoted in "Abandoning peg will slash growth 50 pc in China," *South China Morning Post*, September 15, 2003.
 31. The inflation rate and the unemployment rate would be among the other key concerns.
 32. Other ways include monetary and fiscal policies.
 33. Xiao (forthcoming) discusses this issue more fully and emphasizes the problem of distinguishing productive investments from nonproductive investments.
 34. Indonesia is very similar to China in key economic and institutional features: a geographically vast, and heavily populated economy, and the rural financial system is dominated by branches of a state bank (Bank Rakyat Indonesia, and Agricultural Bank of China respectively); see Woo (2005).



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